

Thierry de Pauw

The Plateau problem: mass vs. size minimization

TIME:

12 Dec 2006, 17:00 - 19:00

LOCATION:

Freie Universität Berlin - Fachbereich Mathematik und Informatik
Arnimallee 2-6, 14195 Berlin-Dahlem (Raum 031)

I will briefly review solutions of the Plateau problem (in every dimension and codimension) contributed simultaneously and independently by H. Federer and W.H. Fleming on the one hand, and E.R. Reifenberg on the other hand, both in the early 1960s. The Federer-Fleming approach proves the existence of mass minimizing integral currents with integral coefficients. Mass corresponds to area counting algebraic multiplicities and mass minimizers model some but not all soap films. Size corresponds to area without counting multiplicities but the existence of size minimizing integral currents is known only in some particular cases. Reifenberg's theory deals with size minimizing objects with coefficients in a compact group. I will describe recent results toward the existence of size minimizers, parts of which are common with R. Hardt or D. Pavlica.

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